

WHAT'S CLAIMED IS:

1. A mobile terminal in TDD mode wireless communication systems, comprising:

a transceiver, receiving and transmitting radio frequency signals;

5 a front end unit, selecting a receiver mode or a transmitter mode according to a control signal, and sampling a signal to be transmitted to generate a sampling signal when the mobile terminal is in the transmitter mode; and

10 a baseband processing unit, providing said control signal to said front end unit, providing said signal to be transmitted to said front end unit when the mobile terminal is in the transmitter mode, and generating a power compensation signal to adjust a power of said signal to be transmitted outputted from said front end unit according to said sampling signal from said front end unit.

2. The mobile terminal of claim 1, wherein said front end unit includes:

15 a switch unit, switching to said receiver mode or said transmitter mode according to said control signal from said baseband processing unit, and when said switch unit is in the transmitter mode, transmitting main signal of said received signal to be transmitted via said transceiver and outputting said sampling signal of said signal to be transmitted as a feedback signal;

a sampling unit, when said switch unit is in the transmitter mode, sampling

said signal to be transmitted to generate said sampling signal and inputting said sampling signal to said switch unit;

a transmitting module, when the switch unit is in the transmitter mode, processing said signal to be transmitted from said baseband processing unit to provide processed signal to said sampling unit, and adjusting the power of said signal to be transmitted according to said power compensation signal from said baseband processing unit; and

a receiving module, receiving said sampling signal via said switch unit and providing said sampling signal to said baseband processing unit, when said switch unit is switched to the transmitter mode.

3. The mobile terminal of claim 2, wherein said switch unit includes:

a transmitter/receiver mode selection switch, transmitting the main signal from said sampling unit via said transceiver when said switch unit is in the transmitter mode; and

a sampling switch, feeding-back said sampling signal from said sampling unit to said receiving module when said switch unit is in the transmitter mode.

4. The mobile terminal of any of claims 1-3, wherein said baseband processing unit includes:

a transmit baseband processing unit, outputting a signal related to a transmit

power and a transmit power control signal; and

a power compensation signal generating module, calculating a power comparison signal according to said sampling signal and said signal related to the transmit power, and generating said power compensation signal according to said transmit power control signal and said power comparison signal.

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5. The mobile terminal of claim 4, wherein said power compensation signal generating module includes:

an actual power calculating unit, calculating an actual output power according to said sampling signal;

10 a comparison unit, obtaining said power comparison signal according to said actual output power calculated by said actual power calculating unit and said signal related to the transmit power; and

15 a combining unit, combining said transmit power control signal provided by said transmit baseband processing unit and said power comparison signal outputted from said comparison unit to generate said power compensation signal.

6. The mobile terminal of claim 4, wherein said power compensation signal generating module includes:

an actual power calculating unit, calculating an actual output power according to said sampling signal;

an expected power calculating unit, calculating an expected output power according to said signal related to the transmit power provided by said transmit baseband processing unit;

5 a comparison unit, obtaining said power comparison signal according to said actual output power calculated by said actual power calculating unit and said expected output power calculated by said expected power calculating unit; and

a combining unit, combining said transmit power control signal provided by said transmit baseband processing unit and said power comparison signal outputted from said comparison unit to generate said power compensation signal.

10 7. The mobile terminal of claims 5 or 6, wherein said comparison unit obtains said power comparison signal periodically according said actual output power and said signal related to the transmit power.

8. The mobile terminal of claim 1, wherein the mobile terminal is applied to wireless communication systems in TDD mode.

15 9. A method for a mobile terminal in TDD mode wireless communication systems, comprising:

selecting a receiver mode or a transmitter mode, wherein when the mobile terminal is in the transmitter mode,

separating a signal to be transmitted into main signal and a sampling signal,

transmitting said main signal and outputting said sampling signal as a feedback signal, and

generating a power compensation signal to adjust a power of said signal to be transmitted according to said sampling signal.

5 10. The method of claim 9, wherein a switch unit selects the receiver mode or the transmitter mode according to a receiver/transmitter mode control signal.

11. The method of claims 9 or 10, wherein a receiving module receives said sampling signal and outputs said sampling signal as said feedback signal when the mobile terminal is in the transmitter mode.

10 12. The method of any of claims 9-11, wherein adjusting said signal to be transmitted is completed by a receive baseband processing unit, a transmit baseband processing unit and a power compensation signal generating module, wherein

15 said receive baseband processing unit, processing said received sampling signal and providing said processed sampling signal to said power compensation signal generating module;

 said transmit baseband processing unit, providing a signal related to a transmit power and a transmit power control signal to said power compensation signal generating module; and

said power compensation signal generating module, calculating a power comparison signal according to said processed sampling signal and said signal related to the transmit power, and generating said power compensation signal according to said transmit power control signal provided by said transmit baseband processing unit.

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13. The method of claim 12, wherein a method executed by said power compensation signal generating module further includes:

calculating an actual output power according to said processed sampling signal;

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obtaining said power comparison signal according to said actual output power and said signal related to the transmit power from said transmit baseband processing unit; and

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combining said transmit power control signal provided by said transmit baseband processing unit and said power comparison signal to generate said power compensation signal.

14. The method of claim 12, wherein a method executed by said power compensation signal generating module further includes:

calculating an actual output power according to said processed sampling signal;

calculating an expected output power according to said signal related to the transmit power provided by said transmit baseband processing unit;

obtaining said power comparison signal according to said actual output power and said expected output power; and

5 combining said transmit power control signal provided by said transmit baseband processing unit and said power comparison signal, processing a combined signal to generate said power compensation signal.

15. The method of claims 13 or 14, wherein the step of obtaining said power comparison signal according to said actual output power and said signal related to the transmit power is carried out periodically.

10 16. The method of claim 9, wherein the method is applied to wireless communication systems in TDD mode.

17. A device for transmit power control, comprising:
a power sampling module, sampling an actual transmit power;
15 a power judging module, comparing said actual output power to an expected output power according to a received power sampling signal; and

a power compensation module, generating a power compensation signal according to an output signal from said power judging module and compensating said actual output power.

18. A transmitter device in wireless communication systems, comprising:

a transmitting means, transmitting signals; and

a transmit power adjusting means, sampling a power of a signal to be transmitted by said transmitting means to obtain a sampling signal of an actual transmit power, comparing the actual transmit power to an expected transmit power according to said sampling signal, and adjusting the power of said signal to be transmitted by said transmitting means according to a comparison result.

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